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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/725,774	12/02/2003	Todd M. Rossi	FDS-P7.2-US	3845
21616	7590	10/26/2005	EXAMINER	
LAW OFFICES OF MARK A. GARZIA, P.C. 2058 CHICHESTER AVE BOOTHWYN, PA 19061			BARBEE, MANUEL L	
			ART UNIT	PAPER NUMBER
			2857	

DATE MAILED: 10/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/725,774	Applicant(s) ROSSI ET AL.	
	Examiner Manuel L. Barbee	Art Unit 2857	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8, 11-14 and 16-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 11-14 and 19 is/are rejected.
- 7) ☒ Claim(s) 16-18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Jones et al. (US Patent No. 5,596,507).

With regard to measuring five parameters associated with a refrigeration system, as shown in claim 1, Jones et al. teach measuring a dozen temperatures (Abstract).

With regard to detecting faults based on the measured parameters, as shown in claim 1, Jones et al. teach a computer that identifies trouble spots and produces graphs, tables and prediction commentary (Abstract). With regard to assigning a level to the measurement parameters based on the relationship between performance parameters and operating range values, as shown in claim 1, Jones et al. teach fault trigger conditions (FTC) which are assigned when a measured parameter or a parameter calculated from a measured parameter exceeds a threshold (col. 5, line 1 - col. 6, line 12; Table I; col. 4, lines 47-67).

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With regard to a data collection unit that has means for providing power, a first microprocessor, a memory, five sensors, and a data port for assisting in communication with the calculating means, as shown in claim 2, Jones et al. teach a computer that would inherently require power and memory, temperature sensors and a sensor lead port connecting to the computer (col. 3, line 48 - col. 4, line 22; computer 82, sensor lead port 72).

3. Claims 11, 12 and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Jayanth (US Patent No. 6,324,854).

With regard to determining the type of expansion device used in the refrigeration system and storing a plurality of HVAC system parameters that have been pre-defined for a particular refrigeration system and type of expansion device, as shown in claim 11, Jayanth teaches prompting the technician for the system configuration, model numbers and expansion device type and then retrieving operating information from memory (col. 4, line 51 - col. 5, line 8). With regard to defining a plurality of diagnostic messages based on the particular refrigeration system, as shown in claim 11, Jayanth teaches using the operating information to provide solutions to the technician for diagnosed problems (col. 5, lines 31-53). With regard to measuring at least five but not more than nine HVAC system variables, as shown in claim 11, Jayanth teaches measuring five temperature values and two pressure values, (col. 3, line 43 - col. 4, line 23; Fig. 3, temperature sensors 40, pressure hoses 36, 38). With regard to calculating various HVAC operating variables including superheat and comparing the HVAC operation variables to stored variables and conveying at least one message to a person

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performing diagnostics, as shown in claim 11, Jayanth teaches calculating a variety of system operating parameters including superheat, comparing the values with stored rules or criteria and displaying the problems, causes and solutions to the technician (col. 5, lines 9-53).

With regard to at least three temperature measurements and two pressure measurements, as shown in claim 12, Jayanth teaches five temperature measurements and two pressure measurements (Fig. 3, temperature sensors 40, pressure hoses 36, 38). With regard to measuring liquid line refrigerant pressure and suction line refrigerant pressure, as shown in claim 14, Jayanth teaches measuring pressure at the discharge port and pressure at the suction port (col. 3, lines 43-61; Fig. 3, hoses 36, 38).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 3-8 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones et al. in view of Jayanth (US Patent No. 6,324,854).

Jones et al. teach all the limitations of claims 1 and 2 upon which claims 3-8 depend. Further, with regard to measuring three temperatures including liquid line, outdoor atmospheric and suction line temperature, as shown in claims 3 and 4, and temperature of supply air, return air, discharge line and air off condenser, as shown in

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claim 19, Jones et al. teach measuring suction line, liquid line, ambient air, supply air, return air, discharge and condenser air temperature (col. 2, line 65 - col. 3, line 35).

Jones et al. do not teach measuring two pressures including liquid line refrigerant pressure and suction line refrigerant pressure, as shown in claims 3 and 4. Jayanth teach measuring pressure near the suction port and the discharge port (col. 3, lines 43-60). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus for predictive maintenance of HVACR systems, as taught by Jones et al., to include measuring two pressures, as taught by Jayanth, because then more monitored parameters would have increased the diagnostic capability (Jayanth, col. 2, lines 8-33).

Jones et al. do not teach that the power providing means comprises a battery, as shown in claim 5, or that the calculating means has a second microprocessor, as second memory and a second data port, as shown in claim 6. Jones et al. do not teach passing data with RS232 specifications, as shown in claim 7, or that the calculating means is a hand-held computer, as shown in claim 8. Jayanth teaches a hand held computer for diagnosis, which would inherently include a battery for power (Figure 3, computer 34). Jayanth teach a data acquisition system with a microcontroller in addition to the hand held computer and both computers would have memory and data ports for communication (Figure 3). The Examiner takes official notice that communication using RS232 specifications is well known.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus for predictive maintenance of HVACR

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system, as taught by Jones et al., to include a handheld computer for calculation, as taught by Jayanth, because then need for each system to have independent sensors and electronics would have been eliminated (col. 2, lines 34-60). It would further have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus for predictive maintenance of HVACR systems, as taught by Jones et al., to include a separate handheld computer in communication with the data acquisition system, as taught by Jayanth, because then it would have been possible to change sensors without changing the handheld computer used for diagnosis. It would further have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus for predictive maintenance of HVACR systems, as taught by Jones et al., to include using RS232 for communication, because then a well known protocol would have allowed communication with many computers.

6. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jayanth in view of Jones et al.

Jayanth teaches all the limitations of claims 11 and 12 upon which claim 13 depends. Jayanth does not teach that the three temperature measurements are suction line, liquid line and outdoor atmospheric temperature. Jones et al. teach measuring suction line, liquid line and ambient air temperature (col. 2, line 65 - col. 3, line 35). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the HVAC diagnostic method, as taught by Jayanth, to measure the temperatures, as taught by Jones et al, because then preventive maintenance would have been more effective (Jones et al., col. 1, lines 6-25).

Allowable Subject Matter

7. Claims 16-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

8. Applicant's arguments filed 12 September 2005 have been fully considered but they are not persuasive. Applicant states that the claimed invention uses only five parameters to detect faults in contrast with Jones that using fifteen measurements. However, claim 1 has limitations for a "refrigeration system, comprising: means for measuring five parameters associated with the refrigeration system." The claim does not limit the number of measured parameters to five. Further, dependent claim 19 includes limitations for at least four more temperature measurements.

Applicant states that the Examiner provides no explanation for how one of skill in the art would incorporate Jayanth into the Jones patent and that no suggestion or motivation to make such combination has been provided. "It is not necessary that the references be physically combinable to render obvious the invention under review" (MPEP 2145 Subheading III). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus for predictive maintenance of HVACR systems, as taught by Jones et al., to include measuring two pressures, as taught by Jayanth, because then more monitored parameters would have increased the diagnostic capability (Jayanth, col. 2, lines 8-33).

Arguments with regard to claim 11 are moot in view of new grounds for rejection.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Manuel L. Barbee whose telephone number is 571-272-2212. The examiner can normally be reached on Monday-Friday from 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S. Hoff can be reached on 571-272-2216. The fax phone numbers for the organization where this application or proceeding is assigned are (571) 273-8300 for regular communications and (571) 273-8300 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-0976.

mlb
March 1, 2005


MARC S. HOFF
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